

REMARKS

[0003] Applicant respectfully requests entry of the following remarks and reconsideration of the subject application. Applicant respectfully requests entry of the amendments herein. The remarks and amendments should be entered under 37 C.F.R. §1.116 as they place the application in better form for appeal, or for resolution on the merits.

[0004] Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1-14 and 16-26 are presently pending. Claims amended herein are: 1, 7-8, 14, 18 and 22. Claims withdrawn or cancelled herein are: 15. New claims added herein are: none.

Statement of Substance of Interview

[0005] The Examiner graciously talked with me—the undersigned representative for the Applicant—on January 24, 2008. Applicant greatly appreciates the Examiner's willingness to talk. Such willingness is invaluable to both of us in our common goal of an expedited prosecution of this patent application.

[0006] During the interview, I discussed how the claims differed from the cited art, namely Osberger and Deng. Without conceding the propriety of the rejections and in the interest of expediting prosecution, I also proposed several possible clarifying amendments.

[0007] I understood the Examiner to agree that independent claim 8 and its corresponding dependent claims would be patentable over the cited art if amended

as discussed during the interview. Independent claim 8 incorporated the allowable subject matter of claim 15. The Examiner stated that further search may be required for the other claims, which incorporated the same allowable subject matter.

[0008] Applicant herein amends the claims in the manner discussed during the interview. Accordingly, Applicant submits that the pending claims are allowable over the cited art of record for at least the reasons discussed during the interview.

Formal Request for an Interview

[0009] If the Examiner's reply to this communication is anything other than allowance of all pending claims, then I formally request an interview with the Examiner. I encourage the Examiner to call me—the undersigned representative for the Applicant—so that we can talk about this matter so as to resolve any outstanding issues quickly and efficiently over the phone.

[0010] Please contact me or my assistant to schedule a date and time for a telephone interview that is most convenient for both of us. While email works great for us, I welcome your call to either of us as well. Our contact information may be found on the last page of this response.

Claim Amendments

[0011] Without conceding the propriety of the rejections herein and in the interest of expediting prosecution, Applicant amends claims 1, 7-8, 14, 18 and 22 herein.

Formal Matters

[0012] This section addresses any formal matters (e.g., objections) raised by the Examiner.

Claims

[0013] The Examiner objects to claims 15-17 for being dependent upon a rejected base claim. Herein, Applicant incorporates the allowable subject matter of claim 15 into its rejected base claim, as shown above, to correct the informalities noted by the Examiner.

Substantive Matters

Claim Rejections under §112 2nd ¶

[0014] Claim 14 is rejected under 35 U.S.C. §112, 2nd ¶. In light of the amendments presented herein on the base claim of claim 14, as well as agreements reached during the above mentioned Examiner interview, Applicant submits that these rejections are moot. Accordingly, Applicant asks the Examiner to withdraw these rejections.

Claim Rejections under § 103

[0015] Claims 1-14 and 18-26 are rejected under 35 U.S.C. §103. In light of the amendments presented herein and the decisions reached during the above-discussed Examiner interview, Applicant submits that these rejections are moot. All independent claims have been amended to incorporate the allowable subject matter of claim 15. Accordingly, Applicant asks the Examiner to withdraw these rejections.

[0016] The Examiner's rejections are based upon the following references alone and/or in combination:

- **Osberger:** *Osberger, et al.*, US Patent No. 6,670,963 (issued December 30, 2003);
- **Deng:** *Deng et al.*, "Peer group filtering and perceptual color image quantization", IEEE Circuits and Systems (Published May 30-June 2, 1999); and
- **Stentiford:** *et al.*, US Patent No. 6,934,415 (issued August 23, 2005).
- **Warnick:** *Warnick, et al.*, US Patent No. 5,901,245 (issued May 14, 1999).

Overview of the Application

[0017] The Application describes a technology for image attention analysis. An embodiment of the present application describes how image attention is modeled by preprocessing an image to generate a quantized set of image blocks. A contrast-based saliency map for modeling one-to-three levels of image attention is then generated from the quantized image blocks. (*Application, Abstract*)

Cited References

[0018] The Examiner cites Osberger as the primary reference in the obviousness-based rejections. The Examiner cites Deng, Stentiford and Warnick as secondary references in the obviousness-based rejections.

Osberger

[0019] Osberger describes a technology for visual attention modeling using a robust adaptive segmentation algorithm. (*Osberger, Abstract*)

Deng

[0020] Deng describes a technology for image smoothing and impulse noise removal in color images. (*Deng, Abstract*).

Stentiford

[0021] Stentiford describes a technology for determining visual attention.
(*Stentiford*, Abstract)

Warnick

[0022] Warnick describes a technology for detecting open space in a digital image. (*Warnick*, Abstract)

Obviousness Rejections

Lack of *Prima Facie* Case of Obviousness (MPEP § 2142)

[0023] Applicant disagrees with the Examiner's obviousness rejections. Arguments presented herein point to various aspects of the record to demonstrate that all of the criteria set forth for making a prima facie case have not been met.

Based upon Osberger and Deng

[0024] The Examiner rejects claims 1, 3-6 under 35 U.S.C. § 103(a) as being unpatentable over Osberger in view of Deng. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

Independent Claim 1

[0025] Applicant submits that Osberger in view of Deng does not render this claim obvious because neither alone nor in any combination do these references show or disclose the following elements as recited in this claim. Amended independent claim 1 recites in part a method for modeling image attention, the method comprising (emphasis added):

- *performing a fuzzy growing operation to extract attended areas from the contrast-based saliency map, the fuzzy growing operation comprising:*
 - *partitioning the contrast-based saliency map into two mutually exclusive areas as a function of classes of pixels comprising attended and unattended pixel areas;*
 - *selecting seeds for the fuzzy growing operation according to a set of criteria such that a seed has a local maximum contrast with respect to other regional perception units and the seed belongs to an attended area;*
 - *grouping pixels in the contrast-based saliency map with gray levels that satisfy criteria that indicate attended as compared to unattended areas; and*
- *iteratively growing the attended area by using grouped pixel as seeds in subsequent fuzzy growth operations until no candidates of the perception units can be grouped*

[0026] The Examiner indicates (Action, p.7) the following with regard to this claim:

16. Re claim 1 Osberger discloses a method for modeling image attention, the method comprising: generating a contrast-based (note the map depends on contrast see column 5 lines 60-61) saliency map (importance map column 2 lines 39-40) for modeling one-to-three levels of image attention from the quantized image blocks (note this section is intended use and the saliency map only need be capable of being used to accomplish it).
17. Osberger does not disclose preprocessing an image to generate a quantized set of image blocks.
18. However Deng discloses preprocessing an image to generate a quantized set of image blocks (see section 5 first paragraph). The motivation to combine is that Deng states "The results of color quantization can be used in color image segmentation." Therefor it would have been obvious to one of ordinary skill in the art to combine Osberger with Deng to reach the aforementioned advantage.

[0027] Neither Osberger nor Deng teach or suggest the "fuzzy growing operation" as recited in this claim. In fact, the "fuzzy growing operation" recited in this claim incorporates the allowable subject matter of claim 15.

[0028] Therefore, the combination of Osberger and Deng does not disclose all of the claimed elements and features of these claims. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

Based upon Osberger, Deng and Stentiford

[0029] The Examiner rejects claims 2, 7, 8-10, 13 and 18-26 under 35 U.S.C. § 103(a) as being unpatentable over Osberger in view of Deng in further view of Stentiford. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

Independent Claim 7

[0030] Applicant submits that Osberger in view of Deng in further view of Stentiford does not render this claim obvious because neither alone nor in any combination do these references show or disclose the following elements as recited in this claim. Amended independent claim 7 recites in part a computer-readable medium storing computer-program instructions executable by a processor for modeling image attention, the computer-program instructions when executed by the processor performing operations comprising (emphasis added):

- *performing a fuzzy growing operation to extract attended areas from the contrast-based saliency map, the fuzzy growing operation comprising:*
 - *partitioning the contrast-based saliency map into two mutually exclusive areas as a function of classes of pixels comprising attended and unattended pixel areas;*
 - *selecting seeds for the fuzzy growing operation according to a set of criteria such that a seed has a local maximum contrast with respect to other regional perception units and the seed belongs to an attended area;*

- *grouping pixels in the contrast-based saliency map with gray levels that satisfy criteria that indicate attended as compared to unattended areas; and*
- *iteratively growing the attended area by using grouped pixel as seeds in subsequent fuzzy growth operations until no candidates of the perception units can be grouped*

[0031] Osberger in view of Deng in further view of Stentiford does not teach or suggest the “fuzzy growing operation” as recited in this claim. In fact, the “fuzzy growing operation” recited in this claim incorporates the allowable subject matter of claim 15.

[0032] Therefore, the combination of Osberger, Deng and Stentiford does not disclose all of the claimed elements and features of these claims. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

Independent Claim 8

[0033] Applicant submits that Osberger in view of Deng in further view of Stentiford does not render this claim obvious because neither alone nor in any combination do these references show or disclose the following elements as recited in this claim. Amended independent claim 8 recites in part a computer-readable medium storing computer-program instructions executable by a processor, the computer-program instructions when executed by the processor for modeling image attention by operations comprising (emphasis added):

- *performing a fuzzy growing operation to extract attended areas from the contrast-based saliency map, the fuzzy growing operation comprising:*
 - *partitioning the contrast-based saliency map into two mutually exclusive areas as a function of classes of pixels comprising attended and unattended pixel areas;*
 - *selecting seeds for the fuzzy growing operation according to a set of criteria such that a seed has a local maximum contrast with respect to other regional perception units and the seed belongs to an attended area;*
 - *grouping pixels in the contrast-based saliency map with gray levels that satisfy criteria that indicate attended as compared to unattended areas; and*
- *iteratively growing the attended area by using grouped pixel as seeds in subsequent fuzzy growth operations until no candidates of the perception units can be grouped*

[0034] Osberger in view of Deng in further view of Stentiford does not teach or suggest the “fuzzy growing operation” as recited in this claim. In fact, the “fuzzy growing operation” recited in this claim incorporates the allowable subject matter of claim 15.

[0035] Therefore, the combination of Osberger, Deng and Stentiford does not disclose all of the claimed elements and features of these claims. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

Independent Claim 18

[0036] Applicant submits that Osberger in view of Deng in further view of Stentiford does not render this claim obvious because neither alone nor in any combination do these references show or disclose the following elements as recited in this claim. Amended independent claim 18 recites in part a computing device for modeling image attention, the computing device comprising a processor coupled to a memory, the memory comprising computer computer-program instructions executable by the processor for (emphasis added):

- *performing a fuzzy growing operation to extract attended areas from the contrast-based saliency map, the fuzzy growing operation comprising:*
 - *partitioning the contrast-based saliency map into two mutually exclusive areas as a function of classes of pixels comprising attended and unattended pixel areas;*
 - *selecting seeds for the fuzzy growing operation according to a set of criteria such that a seed has a local maximum contrast with respect to other regional perception units and the seed belongs to an attended area;*
 - *grouping pixels in the contrast-based saliency map with gray levels that satisfy criteria that indicate attended as compared to unattended areas; and*
- *iteratively growing the attended area by using grouped pixel as seeds in subsequent fuzzy growth operations until no candidates of the perception units can be grouped*

[0037] Osberger in view of Deng in further view of Stentiford does not teach or suggest the “fuzzy growing operation” as recited in this claim. In fact, the “fuzzy growing operation” recited in this claim incorporates the allowable subject matter of claim 15.

[0038] Therefore, the combination of Osberger, Deng and Stentiford does not disclose all of the claimed elements and features of these claims. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

Independent Claim 22

[0039] Applicant submits that Osberger in view of Deng in further view of Stentiford does not render this claim obvious because neither alone nor in any combination do these references show or disclose the following elements as recited in this claim. Amended independent claim 22 recites in part a computing device comprising (emphasis added):

- *means for performing a fuzzy growing operation to extract attended areas from the contrast-based saliency map, the fuzzy growing operation comprising:*
 - *partitioning the contrast-based saliency map into two mutually exclusive areas as a function of classes of pixels comprising attended and unattended pixel areas;*
 - *selecting seeds for the fuzzy growing operation according to a set of criteria such that a seed has a local maximum contrast with respect to other regional perception units and the seed belongs to an attended area;*

- *grouping pixels in the contrast-based saliency map with gray levels that satisfy criteria that indicate attended as compared to unattended areas; and*
- *iteratively growing the attended area by using grouped pixel as seeds in subsequent fuzzy growth operations until no candidates of the perception units can be grouped*

[0040] Osberger in view of Deng in further view of Stentiford does not teach or suggest the “fuzzy growing operation” as recited in this claim. In fact, the “fuzzy growing operation” recited in this claim incorporates the allowable subject matter of claim 15.

[0041] Therefore, the combination of Osberger, Deng and Stentiford does not disclose all of the claimed elements and features of these claims. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

Dependent Claims

[0042] In addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant requests that the Examiner withdraw the rejection of each dependent claim where its base claim is allowable.

Conclusion

[0043] All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the **Examiner is urged to contact me before issuing a subsequent Action.** Please call/email me or my assistant at your convenience.

Respectfully Submitted,

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